As most of us seem to have little time to browse through the recent acquisitions section of the library it is important that a volume of this nature should come armed with a useful index. I am pleased to say that in this case the editors have furnished the volume with one which is comprehensive. In summary, I would have no difficulty in recommending the purchase of this book to my library and would expect it to be consulted on a regular basis for some time.

A.M. Hetherington

Plant Protein Engineering; edited by P.R. Shewry and S. Gutteridge, Cambridge University Press; Cambridge, 1992; xvi + 346 pages. £55.00. ISBN 0-521-41761-9.

Protein engineering is a field of growing importance both scientifically and because of potential applications. The stated aim of this book is to help students and researchers to realise the potential of plant protein engineering, and perhaps "potential of" should have been included in the title which is otherwise misleading. Little data exists on plant proteins and the book's general theme is the identification of desirable plant traits as targets for protein engineering.

An exception to the above is the chapter on *Structural Constraints on Protein Engineering*, which sets out the steps of the rational design of proteins with changed or new properties, the forces determining protein structure, and likely structural constraints. A prerequisite to protein engineering is gene cloning and expression, resulting in large amounts (100's mg) of protein, and methods for over-expression of engineered cloned genes in *E. coli* and mammalian cells and analysis of recombinant proteins are discussed. Plant protein engineering data exist for ribulosebisphosphate carboxylase/oxygenase, photosystem II protein and barley chymotrypsin inhibitor 2, and these are reviewed in three chapters which concentrate on the functional analysis of site-directed mutations.

There are chapters on organellar targeting, in which a brief mention is made of molecular chaperones, the structure of legume storage genes and their encoding proteins, expression of wheat gluten proteins in heterologous systems, structure of wheat storage proteins, synthesis of zeins and their potential for amino acid modification, and structure and possible targets for protein engineering of thaumatin and other sweet proteins. All of these six chapters, although satisfactory as accounts of the structure and function of the respective proteins, contain little about protein engineering per se. Then follow chapters on the X-ray analysis data on plant cysteine proteases and amylases, redesigning ricin, which describes the protein engineering used to produce immunotoxins and related conjugates containing ricin A chain, the potential for engineering cytochrome P-450 mono-oxygenases, engineering *Bacillus thuringiensis* S-endotoxins as an insect protectant, and novel peptide and protein production in plants.

In summary, the coverage is very broad, including applications in the Food Industry, agricultural productivity, herbicides, insecticides and therapeutics. Whilst many of the chapters are good as accounts of their topic areas and point the way to the future, much of the material of this book is on the periphery of protein engineering.

D. Boulter

Protein Targeting: A Practical Approach; edited by A.I. Magee and T. Wileman, Oxford University Press; Oxford, 1992; xix + 267 pages. £22.50 (pbk). ISBN 0-19-963210-3.

The area of protein targeting is a very exciting and continually expanding area of research and is relevant to a wide range of pure and applied research topics. This book therefore comes as a welcome addition to the "Practical Approach" series. Each chapter is contributed by active researchers in the field and a wide range of topics are covered. These include nuclear protein import, targeting to mitochondria and a whole chapter dedicated to the use of anti-idiotype (network) antibodies in studying protein targeting. There is, however, no chapter on the role of the endoplasmic reticulum in targeting, and the discussion of the use of yeast is somewhat limited.

The protocols given in this book are very thorough, as indeed is the case with all titles in this series. However, in some chapters there seems to have been a tendency to cover material which seems out of place in a book with the title of "Protein Targeting". This is particularly true of molecular biological procedures which might have been omitted to make room for more in-depth procedures more related to targeting. However these procedures would obviously be of help to the novice researcher and each section does still contain many other useful protocols and indeed a great deal of useful information.

The procedures included are general enough such that those on cell surface labelling in polarized epithelial cells could quite easily be adapted to other systems. The chapter on network antibodies by David Vaux gives an excellent account of both the power and limitations of this procedure. The considerations of receptor-mediated endocytosis and lysosomal transport in the first section are similarly excellent and are presented at a suitably general level. Other chapters tend towards a presentation of techniques used by the authors for their own work but rarely does this detract from the usefulness of their inclusion. Indeed leafing through this, and other titles in the series, it is clear that the aim (as is stated in the introduction to this book) is to stimulate the researcher to develop the methods set out in the book for their own individual means. As well as the above, the chapters on in vitro reconstitution of transport steps and the involvement of lipid modifications in targeting appear particularly well suited for this.

My personal opinion is that this book would be of particular